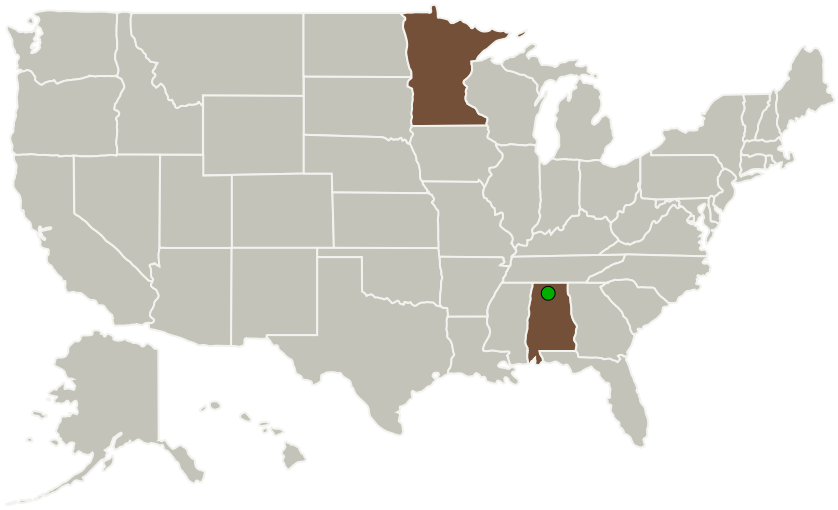
Architecture Framework for Fault Management Assessment and Design (AFFMAD), Phase I

Completed Technology Project (2014 - 2014)

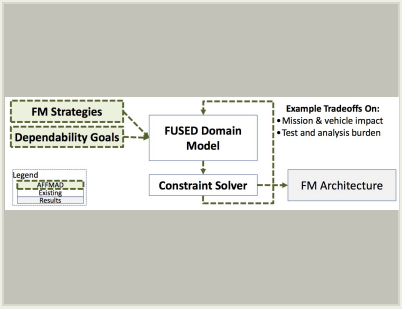
Project Introduction

The Architecture Framework for Fault Management Assessment And Design (AFFMAD) is a constraint-checking system for FM trade space exploration that provides rigorous performance guarantees for FM strategies for complex cyber-physical systems. AFFMAD will aid FM engineers in the early evaluation of FM strategies and improve the efficiency of implementing and testing those strategies. Using existing multi-mode cyber-physical reasoning systems, recent advances in Satisfiability Modulo Theory (SMT) solvers, hierarchical scheduling theory, and system-level modeling frameworks, AFFMAD will assist users in identifying FM conflicts and inconsistencies in FM approaches and mission requirements as they are developed.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Adventium Enterprises, LLC	Lead Organization	Industry	Minneapolis, Minnesota
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama



Architecture Framework for Fault Management Assessment And Design (AFFMAD) Project Image

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Small Business Innovation Research/Small Business Tech Transfer

Architecture Framework for Fault Management Assessment and Design (AFFMAD), Phase I

Completed Technology Project (2014 - 2014)

Primary U.S. Work Locations	
Alabama	Minnesota

Project Transitions

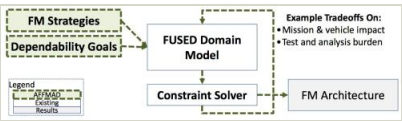
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140610)*

Images



Project Image
Architecture Framework for Fault Management Assessment And Design (AFFMAD) Project Image *(https://techport.nasa.gov/image/137187)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Adventium Enterprises, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Todd Carpenter

Co-Investigator:

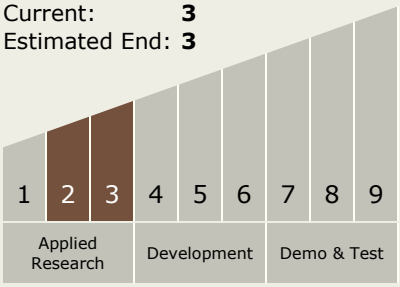
Todd P Carpenter

Architecture Framework for Fault Management Assessment and Design (AFFMAD), Phase I

Completed Technology Project (2014 - 2014)

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.1 Software Development, Engineering, and Integrity
    - TX11.1.7 Frameworks, Languages, Tools, and Standards

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System